

*REMARKS**Discussion of Claim Amendments*

Claim 37 has been amended to correct a minor discrepancy; it has been now designated as withdrawn since it depends upon withdrawn claim 28. Claims 4, 19, 27, and 28 have been amended to correct an obvious typographical error. No new matter has been added.

The Office Action

The Office Action sets forth the following grounds for rejection: (1) Claims 37 and 38 are objected to for an alleged informality; (2) claims 1, 2, 11-14, 16, 26, 35 and 44 are rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent 6,391,519 (Kunita); and (3) claims 5, 20, 29, and 47 are rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Kunita in view of U.S. Published Patent Application 2004/0048195 (Deroover et al.).

Examiner Interview

Applicants wish to thank Examiner Joshua D. Zimmerman for the courtesies extended to Xavier Pillai, one of Applicants' attorneys during the telephone interview held on December 20, 2007. The Examiner confirmed that Applicants have satisfied the requirement under 35 U.S.C. § 103(c) to remove the obviousness rejection over Deroover et al. by filing a statement of common ownership in the Reply filed June 22, 2007. The Examiner also indicated that, if he issues another Office Action in response to the present Reply, it would be a non-final Office Action.

*Discussion of Rejections**A. Claim Objections*

Claims 37 and 38 are objected to for an alleged informality. The Office Action alleges that claims 37 and 38 should be designated as withdrawn for the alleged reason that these claims depended upon a withdrawn claim. Applicants have re-designated claim 37 as withdrawn. However, claim 38 should not be designated as withdrawn since it is dependent

upon claim 29 which is not withdrawn. Accordingly, the objection to the claims should be removed.

B. Obviousness Rejections

Claims 1, 2, 11-14, 16, 26, 35 and 44 are rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Kunita. The Office Action states that Kunita discloses "a polymer comprising a phenolic monomeric unit (polymer II-(1)) wherein the H atom of the hydroxy group of the phenolic monomeric unit is replaced by a group Q (the group -X-Y'-Z'; see column 5 lines 49-52, column 31, lines 46-50 and 57-65; column 32 lines 1-24 and especially line 22 reciting the selection of an imide, which inherently includes N-imides) wherein L is a linking group (component X), wherein k is 0 or 1, wherein L is covalently bound to the O atom of the polymer when k is 1, or wherein the N atom of the N-imide group is covalently bound to the O atom of the polymer when k is 0 (see the structure of II-(1)), wherein X or Y are independently selected from O or S (when choosing an imide, X and Y are selected to be O), and wherein T¹ and T² represent a terminal group (when choosing an imide, T¹ and T² are inherently present, no matter which imide one chooses or which Z' (column 32, lines 55-67) one chooses)."

The Office Action concedes that Kunita fails to disclose that the group Q is an N-imide of the structure recited in claim 1 and that "it is noted that in the specific embodiment of Kunita cited here that a monovalent linking group Y' is not preferred (column 31, lines 58-60). However, Office Action alleges" "the groups Y' are selected because they are "known to cause a strong interaction with a phenolic hydroxyl group (column 31, lines 60-64)." Further, in the first embodiment disclosed by Kunita, the groups from which Y are chosen include monovalent linking groups, such as monovalent imides and, generically, any monovalent nitrogen compound (see the list of structures drawn on column 6 for Y¹). Kunita chooses these compounds specifically because of the strong interaction with the phenolic hydroxyl group (column 30, lines 13-18), which is the same reasoning for choosing those structures listed for Y¹. Using these compounds/structures results in a film with a high density and an improved image recording material (column 30, lines 18-27). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use an N-imide (a sub-genus of both the parent genera 'imide' and 'monovalent nitrogen compounds', which one having ordinary skill in the art could at once envisage) as the group Y' in the second embodiment (II-(1)) of Kunita in order to achieve a film with a high density.

Applicants respectfully traverse the rejection. First, Applicants incorporate by reference the reasons submitted in the previous Reply that there is no motivation for those skilled in the art to select an N-disubstituted imide lacking a dissociative active hydrogen atom on the nitrogen, as recited in claim 1, from the teachings of Kunita which expressly requires the presence of a dissociative active hydrogen atom on the nitrogen.

Applicants respectfully submit that they have proceeded against the conventional wisdom of the prior art, namely, prepared a polymer that *lacks* the dissociative active hydrogen atom on nitrogen, which the prior art states to be a *requirement*. It is well established that proceeding against conventional wisdom is a “strong evidence of unobviousness”. *In re Hedges*, 228 USPQ 685, 687 (Fed. Cir. 1986); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 220 USPQ 303 (Fed. Cir. 1983) (prior art teaching that conventional polypropylene should have *reduced crystallinity* before stretching and should undergo *slow stretching* led away from claimed process of producing porous article by expanding *highly crystalline* PTFE by *rapid stretching*); *accord, In re Fine*, 5 USPQ2d 1596, 1599 (Fed. Cir. 1988). Accordingly, there is a strong evidence the presently claimed invention is non-obvious, and the rejection should be withdrawn.

Further, in the presently claimed polymer, the substituted imide is covalently bound to the oxygen atom. This is quite different from a strong interaction that a dissociative active hydrogen atom would form with a phenolic hydrogen atom. Kunita is talking about hydrogen bonding by way of strong interaction. As those of skill in the art would appreciate, hydrogen bonding is not a covalent bond; nor can a hydrogen bond suggest a covalent bond.

The Office Action also states that “the groups for which Y are chosen include monovalent linking groups, such as monovalent imides and, generally, any monovalent nitrogen compound (see list of structures drawn on col. 6 for Y¹)”. Applicants respectfully submit that the Office Action is in error.

Firstly, the structures of col. 6 for Y¹ are only related to Polymer I-(1) (see col. 4 lines 65 to col. 6, line 40) and these polymers have the group –X-Y-Z on the *carbon* atom of the phenyl group (see formula at col. 2 lines 45-54) and this group –X-Y-Z does not replace the hydrogen atom of the hydroxy group of the phenolic monomeric unit (see claim 1 of the present invention). The hydrogen atom of the OH group is still intact as can be seen from the

formula. Secondly, there is no disclosure or hint in Kunita of a monovalent imide which is bound *by the nitrogen atom* of the imide and, further, a monovalent imide which is bound by the *nitrogen* atom of the imide to the *oxygen* atom of the hydroxy group.

As discussed in the previous Reply, only the structures mentioned in Kunita on col. 30 line 44 to col. 33 line 10 could be taken in consideration because these structures relate to Polymer II-(1), but the imide groups disclosed herein have "a dissociative active hydrogen atom". This means that all these groups for Y'¹ or Y'² have a hydrogen atom *on* the nitrogen atom. If the group is an imide group, this means that a hydrogen atom is present *on* the nitrogen atom of the imide group. In claim 1 of the present invention, this hydrogen atom on the nitrogen atom of the imide group is replaced by a group L which is also further bound to the oxygen atom of the hydroxy group of the polymer. Therefore, in claim 1, the imide is defined as an N-imide which means that the hydrogen atom on the nitrogen atom is replaced by another substituting group L. This is neither disclosed nor suggested by Kunita. Accordingly, the rejection is erroneous and should be withdrawn.

Applicants respectfully submit that the Office Action's attempt at an alternative way of finding motivation is also erroneous. The Office Action attempts to combine the embodiments of Kunita: "The specific functional group for the second embodiment of Kunita (X-Y'-Z') is chosen because it exhibits a strong interaction to create a hydrogen bond with an adjacent phenolic hydroxyl group in the polymer (column 39, lines 12-15) in order to create a film with a high density (column 39, lines 19-20). It is an inherent property of monovalent nitrogen that it will create hydrogen bonds with nearby hydroxyl groups. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use an N-imide (a sub-genus of both the parent genera 'imide' and 'monovalent nitrogen compounds', which one having ordinary skill in the art could at once envisage) as the group Y' in the second embodiment (II-(1)) of Kunita in order to achieve a film with a high density."

The above argument of the Office Action must fail because the presently claimed invention lacks an important ingredient required to justify the argument, namely, a strong hydrogen bond with an adjacent hydroxyl group in the polymer. There is no adjacent hydroxyl group on the polymer recited in claim 1. Thus, the Office Action's contention of inherency based on strong hydrogen bond formation is meritless and must fail.

Furthermore, the law requires, in order to justify an obviousness rejection of a composition of matter claim, that the prior art must teach a method of making the claimed composition. See, for example, the post-KSR case, *Forest Labs v. Ivax Pharmaceuticals, Inc.*, where the validity of the patent for an optical isomer of citolapram was upheld in an obviousness challenge since the prior art failed to teach a method of isolating the isomer. 84 USPQ2d 1099 (Fed. Cir., September 5, 2007).

Since Kunita fails to teach a method of making a polymer recited in the present claims, the Office Action failed to make a *prima facie* case for obviousness. Specifically, it failed to show that there is a reasonable expectation of success in arriving at the claimed invention.

The obviousness rejection is also contrary to *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. Supreme Court 2007), and the guidelines established by the USPTO for determining obviousness. The invention here is not one of combining prior art elements according to known methods to yield predictable results. The N-disubstituted imide of the claimed invention is not a prior art element as Kunita fails to disclose such an imide. The prior art also does not show a method of making (synthesizing) such polymers. There is no reasonable expectation that the polymer with such an imide group can be arrived at, especially in view of the teaching in the art that a dissociative active hydrogen atom is required on the nitrogen and that the dissociative active hydrogen is required to provide hydrogen bonding with a phenolic hydroxyl group.

The presently claimed invention also is not a simple substitution of one known element for another to obtain predictable results. The polymer containing the N-disubstituted imide is not a result of a simple substitution of one known element with another known element. As discussed, the presently recited imide is not in the cited prior art. The results also cannot be predicted since the required dissociative active hydrogen atom is missing in the claimed invention. The presently claimed invention also is not the use of a known technique to improve a similar product. It also is not an obvious to try situation. Applicants did not choose from a finite number of identified, predictable solutions with reasonable expectation of success. The chosen imide has never been identified by the cited prior art. It also cannot be a predictable solution in view of the requirement in the art of a dissociative active hydrogen atom on nitrogen.

“Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal

conclusion of obviousness.” *In re Kahn*, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), quoted with approval by *KSR*, 82 USPQ2d at 1396. The Office Action failed to meet its burden under *KSR* and the USPTO guidelines. Accordingly, the rejection must fall.

As regards the rejection of claims 5, 20, 29, and 47 over the combination of Kunita and Deroover et al., as discussed in the Examiner Interview, the statement of common ownership satisfied the requirement to overcome the rejection. As discussed above, Kunita by itself does not suggest the claimed invention of these dependent claims.

In view of all of the foregoing, Applicants respectfully submit that the presently claimed invention is non-obvious, and the obviousness rejections should be withdrawn.

Conclusion

A favorable decision is solicited. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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Date: December 21, 2007